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INTRODUCTION

1. Before World War I there was no electrical industry in Poland; practically all electrical goods were imported. Between the wars (1921-39) a number of branches of electrical manufacturing came to life, their growth being stimulated by lack of foreign currency and the resulting high import barriers.

   To understand the present-day situation it is necessary to describe: (a) conditions prior to 1939, (b) what happened to the plants during World War II and (c) how the new Communist management was compelled by its structure and mechanics of operation to cope with problems of restoration of production.

2. We will start with electrical machines and show the development of events. All other branches of electrical manufacturing followed similar patterns and can be described more briefly. all the data of this report are approximate. Pre-World War II publications and other sources could be used to correct the approximations if a more accurate picture is desired.

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ELECTRICAL MACHINES

3. In 1939 there were the following companies in operation:

   (a) Brown-Boveri plant in Żychlin, controlled by Brown-Boveri in Switzerland, was the largest plant for electrical machines, with some 600 employees. It was an efficient, well-designed plant, making electric motors of 1-300 hp, and transformers up to 35 kv, 30-50 kv-a.

   (b) PTE (Polskie Towarzystwo Elektryczne or Polish Electrical Company) in Warsaw, had some 300 employees, and made standard motors, special motors, individual large machines and transformers.

(c) Skoda, Warsaw, controlled by Skoda in Czechoslovakia, devoted 80% of its output to standard electrical motors of 1-60 hp, and 20% to small and medium transformers, occasionally up to 35 kv, 30 kv-a. It had some 350 employees.

(d) K Pustola, Warsaw, was a small plant with some 100 employees significant for specializing in special small electrical machines only, such as generators for military and naval radio transmitters, motors for pumps, etc.

(e) Two small firms, one in Łódź, one in Bielsko, manufacturing small motors for the textile industry.

4. After World War II the situation was as follows:

(a) Brown-Boveri was not destroyed and production resumed after some slight delay.

(b) PTE in Warsaw was destroyed,

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(c) Skoda was badly damaged in the bombardments of 1939. Some machines were brought to the main office buildings on Zluta Street in Warsaw and a "make believe" activity was carried on through 1940-49 in order to give some of the Skoda employees a "legal" existence. If the employees were known to be idle, they would have been deported and forced to work elsewhere. It is questionable whether this plant will ever be rebuilt. Probably not, for a very special reason: the Skoda factories were built adjacent to the Warsaw military and civilian airport. With the severe security measures now surrounding military aviation it is extremely unlikely that the remains of the Skoda buildings would be used for non-military production.

(d) Pustola was heavily damaged, but salvageable (in 1945).

(e) Plants in Bielsko and Łódź should have been left undamaged.

5. Immediately after the war /1945/ it was not quite clear who would operate the plants. It was natural that every owner, director or former employee tried to get back into his own business, and endeavored to start anew with what he had left in his plant. On the other hand the new regime had its own ends in mind, but did not disclose them until later. First the prewar management was permitted to inventory its losses, consolidate a crew and assemble what could be found in machinery and tools, repair buildings, and put the plant in some sort of shape. After that process was well advanced, the gradual squeezing out of the old management took place and the new system began to emerge.

6. The Ministry of Industry and Commerce, which before World War II had been an agency of limited power, in the new system became the actual operator and owner of all plants. It appointed a number of self-contained agencies under the names Centralny Zarod Premystu X (Central Management of Industry X) for the electrical, textile, steel, coal, chemical, metal and a number of other industries. Each "Central Management" performed the functions of a president of a company and his staff and also exercised political power. "Central Management of Industry X" in turn had its subdivisions called Zjednoczenia (Associations) which grouped together plants manufacturing similar articles. For example, in 1946, the "Central Management of Electrical Industry" controlled the following associations:

(a) Electrical Machines

(b) Conductors and Cables

(c) Light Bulbs

(d) Power generating plants - utilities - (in 1946 it was under discussion whether to elevate utilities to a Central Management equal to Electrical Machines or to incorporate them into the Electrical Industries). 50X1

(e) Apparatus (switchgear)

(f) Installation Materials - (under discussion in 1946)

(g) Telephone, Telegraph and Radio
(There were discussions being held between the Ministry of Posts and the Ministry of Industry as to who should have jurisdiction.)

7. "Central Management" directly or through its Associations completely controlled all plants. It appointed plant personnel, assigned orders, conducted central purchasing, established "norms" or standards of output to be met by individual employees, fixed wages and salaries, and prices of manufactured goods, etc. It also took over all distribution through its organization Centrala Zbytu Premystu X (Central Distributing Agency of Industry X) and had to make profits transferable to the Ministry of Industry.

8. The system operated theoretically in this way: Central Managements of particular industries presented their yearly or 5-year plans to the very important department of the Ministry of Industry dealing with planning. The Ministry in turn presented consolidated plans to Centralny Upra Planovania (Central Office of Planning). There, all policy decisions were made; what would be manufactured to satisfy the demands of government, what for export to the USSR, or for new coal mines to increase that export, and - in the end - what for consumer use.

9. The structure of leadership at all levels including the lowest - the plant - was identical. It always consisted of three men. The top man is called Nachelny Dyrector (Director in Chief or Managing Director). Under him were two other directors: a Technical Director for all technical and manufacturing problems and an Administrative Director for finance, supply, accounting, personnel and services. The most important function of that last person was not publicized; it was to be a "political commissar" of his unit. The political commissar's importance for the new regime was paramount and therefore as early as the end of 1946, the Ministry of Industry hurriedly changed administrative directors in all plants replacing them with members of the Communist Party. In order to fill such a large number of positions, courses were organized to teach a factory worker in four months how to become an Administrative Director of an organization, whether it be a steel mill, a cable factory or a home for orphans.

10. The managing directors of larger units (Central Management, Central Distributing, and Associations of factories) were appointed from party ranks for the same reason. The pre-World War II anti-Communist but experienced personnel were invited or drafted to occupy positions of technical directors. In factories the position of managing director had to be left to non-Communist individuals because skill was still essential and could not be readily replaced by "political education."

11. Although theoretically decisions should be made at the top of the organization, it happened that due to poor knowledge of technical matters at the top, conferences of plant managers were frequently called and their advice sought. Non-Communist plant managers and technical directors of "associations" had no sympathy with the "people's republic" and endeavored in one way or another to restore pre-World War II plants as they were, in the hope that the totalitarian system would eventually be replaced by a normal organization, but their hopes did not materialize.

12. In the Electrical Machines "Association," the Żychlin plant (formerly Brown-Boveri), being the largest left undestroyed, argued that it would be well to concentrate all available personnel and facilites at that factory. On the other hand people from Skoda and PTE factories pointed out that skilled labor still remained in Warsaw, and their factories should be urgently reconstructed. 50X1
In general it was a political and a prestige matter to reconstruct the capital first and give the populace employment. It is most likely that a factory on the PTE site or a new one has been built in Warsaw and personnel of Skoda and PTE employed. Łódź, a center of the textile industry, became important for services it could render to the USSR, and it is very likely that a factory of electrical machines for textile needs was put in operation there. 50X1 they may be known as factory No 1, 2 and 3, but it is easy to trace them to their original owners and estimate their present size. By now some manufacturing facilities should have been relocated to assist in specialization - one plant devoting itself to a limited number of manufactured items. That was one of the objectives of the new regime.

ELECTRIC WIRE AND CABLES

13. Before the war [1939] there were two cartels operating. One, called Biuro Evidencyine (Recording Office) included all (4) factories manufacturing lead-covered cables, each participant entitled to 25% of the country's demand. An international agreement prohibited export and protected the industry from the import of cables. It was an association of the larger factories. The second one, called Centroprewod (Centroconductor) included manufacturers of non-lead-covered insulated conductors and consisted of ten-odd members. The members of the first (lead-covered cables) group also belonged to the second cartel, dominating it.

Lead-Covered Cables Group

14. Kabel Kraków (Kraków Cable) in Kraków was the largest of the group. Owned by banks in Bratislava, Czechoslovakia, it was technically managed by Bratislava's cable plant which was owned by the same banks. It was a very enterprising organization with interesting possibilities. Restricted by cartel agreements from expanding its cable and wire production, the company added new manufacturing items to its line year after year. The most modern copper rolling mill in Poland was installed at Kraków. It had a 1,000 hp motor to drive the mill and produced 30 tons per day of 1/4" copper rod. Its flexible wire department manufactured one-piece molded rubber plug-flex-plug wire for household and military customers. A bakelite line was added in 1935. It included boards of bakelized fabric (for making gears), and boards of bakelized paper (for insulated panels and electrical parts). A separate division manufactured large quantities of inexpensive fixtures for building wiring: switches, plugs, and lamp sockets. This division shortly became comparable in output to its two largest competitors, Borkowski and Cishewski. An enameled wire department was installed and did very well, also. The factory employed some 800 workers. It was operated during World War II under German AEG management, some machinery being added, especially from the destroyed Skoda cable plant in Warsaw. It was left intact after the war.

15. Kabel Polski (Polish Cable) in Bydgoszcz was originally started by Poles, and later acquired by Germany's Siemens - AEG, members of the international cable cartel. The company's manufacturing program was limited to items covered by agreements with the two cartels: lead-covered paper and rubber insulated power cables, lead-covered telephone exchange and toll cables, and rubber insulated building and flexible wire. The plant was operated by Germans during World War II in territory incorporated into the "Deutches Reich." The factory suffered no damage and emerged after the war with an added department of plastic insulated wire.

16. Fabryka Kabli Ożarów (Ożarów Cable Plant) in Ożarów, some 15 miles west of Warsaw, was built and controlled by the German firm Felton and Guillome in Köln. Technical advice and experience were supplied from Köln. It had production lines similar to Kabel Polski, ie, lead-covered telephone and power cables, and rubber insulated wire, and one line unique in Poland: the manufacture of Pupin coils for loading of long distance (toll) telephone cables. It was a very well-equipped and well-run department. The plant was operated during World War II by Felton and Guillome management, but was badly damaged during war action in and around Warsaw. 50X1 50X1 in 1946 funds were made available for its reconstruction. 50X1

17. Skoda, Warsaw-Okęcie, was later operated under the name of Warszawska Wytwórnia Kabli (Warsaw Cable Plant) though still owned by Skoda in Czechoslovakia. The plant, built on a common site with the Skoda electric motor and aircraft motor plants, was bombed out during the first days of the war /1939/. It was left unrepaired during the war. The machinery was removed; the lead presses to Germany, and the armoring, and telephone wire and cable winding machines to Ożarów and Kraków. 50X1 50X1 this plant will ever be reconstructed, for reasons explained above in connection with Skoda's electrical machines plant.

18. Three cable plants remained after World War II: Kraków, Bydgoszcz, and Ożarów. These are completely sufficient to supply the Polish demand for lead-covered cables. All three plants have similar equipment and about equal capacity for the manufacture of telephone and power cables. Technically these plants are comparable in equipment and capacity to cable manufacturing plants in Europe or in the US. Power cables were manufactured up to 35 kv. Equipment for 60 kv solid paper cables was installed in 1938-39 in all three plants and licenses purchased for oil-filled cables from Pirelli in Milan, Italy. Gas-filled cables were not manufactured in Poland. Technical development stopped as of 1939.

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Rubber Insulated Wire Group

20. The participants of the Centroprewód (Centroconductor) (rubber insulated wire agreement) did not fare as well as the cable factories. The small manufacturers, mostly Hebrews, were exterminated along with their property by the Germans. After World War II, in addition to the three cable factories described above, the following plants were in operation:

(a) Fabryka Kabli i Drutu (factory of cables and wire) in Będzin near Katowice was a large plant consisting of a copper rolling mill (600 hp mill, output: 15 tons of 1/4" copper rod per 24 hours), an aluminum and brass extruding press, wire drawing and stranding machines, and other equipment for making rubber insulated wire. In 1946 it employed about

600 workers. It was an old plant, worn out by war production under the German occupation, but the first of all cable plants to resume production after the war. 50X1

(b) Klement Zahm, in Dziedzice, was a small but very neat plant equipped to manufacture efficiently only one article: small-size rubber insulated wire out of bought drawn copper wire. There were some 80 to 100 employees working in three shifts.

(c) Kabel (cable) in Warsaw was bombed and burned out, but still contained a number of salvageable machines. Before World War II it had a copper rolling mill of the size of the Kraków plant [par 14] and a very aggressive and efficient rubber insulated wire division. It had some 300 employees.

(d) Three or four very small factories for magnet wire, enameled wire, and building wire. These were struggling along under private ownership in 1946. They had no chance to survive and by now should have been demolished and absorbed by factories of the "Association of Cable Factories."

21. The "Association of Cable Factories," formed in Katowice by the new regime, found itself in 1946 facing a serious problem. The copper rolling mills in Kraków and Będzin were the only ones left in operating condition after World War II. Their output was insufficient and it was essential to put into operation a third copper mill. The only available one was buried under a collapsed, burned roof in the Kabel plant, and work was started to dig it out, overhaul and install it. At that time it was not clear where it would be used, in the reconstructed Kabel plant or at Ożarów. It probably was installed at Ożarów.

22. We can be reasonably sure that in Poland so badly in need of reconstruction, there were no funds made available to build a 4th lead-covered cable factory. Kraków, Bydgoszcz and Ożarów could meet the demand for the foreseeable future unless one of the factories was sold to the USSR. It is possible however that by now some relocation of machines has taken place in order to comply with a strong trend to "specialize" the factories.

23. Rubber insulated building and industrial wire was not in sufficient supply after World War II, for the war losses of that industry were heavier. Here also a strong feeling was displayed in 1946 against splitting production among a number of small plants.

24. An expansion of plants has probably taken place, and it should have occurred first of all at Kraków, possibly at Ożarów, least probably at Bydgoszcz. These assumptions are made on the basis of available space, existing market, and the need to provide employment to the population. Będzin had no place to expand, and probably remains unchanged. The Klement Zahm plant was small, and in a small town, but it would be logical to use it for supplying special rubber insulated products used in mines to the coal and iron industry located near by. It would be interesting to know whether the Kabel plant in Warsaw was ever rebuilt.

TELECOMMUNICATION INDUSTRY

25. Państwowe Zakłady Telekomunicacyjne (Government Telecommunication Plant) in Warsaw was the only factory in Poland manufacturing telephones, automatic switchboards, telegraph and electronic telecommunication equipment on a large scale. It was very well equipped and owned by the Ministry of Communication (Post and Telegraph). It employed some 1,000 to 1,500 workers and was very much up to date. As a side line it manufactured commercial radio receivers and mass produced electric meters for use by utilities in dwellings. The plant was seized during World War II and operated in great

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secrecy by the Germans. During the Warsaw uprising it was substantially damaged, but being of prime importance it was one of the first plants receiving government attention and funds for reconstruction. By now it should be in full operation. 50X1 50X1

26. Standard Electric of London built a small plant in Poland in 1937 for specialized manufacture of items in the telecommunications line, did

27. during World War II the possession of radios was punishable by death, and after the war a similar attitude was taken by the new regime. It is possible that by now some cheap radios are mass manufactured 50X1 50X1 50X1 50X1 50X1 50X1

ELECTRIC LIGHT BULB INDUSTRY

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29. Osram in Łódź, was a medium-sized plant and being in territory incorporated into the "Deutsches Reich" did not suffer any damage. After World War II production was resumed.

30. There was a factory in Katowice for light bulbs only, where production was resumed very successfully after World War II. Even in 1946 it complained that it could produce more than the local market (an industrial area) could consume.

31. There was a small old plant in Warsaw which was burned out but it was of no importance. There may also have been a small plant in Poznań, 50X1 50X1

ELECTRICAL APPARATUS INDUSTRY

32. Before World War II (in 1939) there were in Poland the following leading manufacturers of switches for power plants and transformer substations (utilities), switches, fuse boxes and automatic protective devices and starters for electric motors, generators and ovens.

(a) K Szpotański and Company, Warsaw

(b) S Kleiman and Sons, Warsaw

(c) Bracia Borkowscy (Borkowski Brothers)

(d) Half a dozen small manufacturers making very simple switches in limited quantities.

(e) One factory in Bydgoszcz, important because it had practically a monopoly on railroad switchboxes and signal boxes.

After the war these became members of the new "Association of Electrical Apparatus Factories."

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33. K Szpotański and Company before World War II was on its way to becoming an undisputed leader in the field of high voltage and high-power switchgear for utilities and industry. It spent much money to build laboratories, employ a highly educated technical staff, and worked hard to keep abreast of and compete with first-class German, Swedish and Swiss companies. It was much liked by the utilities because of the good service rendered. The company had only one real competitor: S Kleiman and Sons.

50X1 34. After World War II Mr Szpotański 50X1 story of his plant. The Warsaw uprising resulted in expelling all the population out of Warsaw and left the city for several months in the hands of German demolition squads. The buildings of the plant were damaged but repairable, the machine tools, laboratories etc were partially and without much planning dismantled and sent to Germany. Part of the personnel were recoverable and Mr Szpotański started very energetically to collect employees and start reconstruction designs, drawings and plans to rearrange the remaining equipment in order to start again 50X1 his prewar program of activities. The work was well started when the inevitable happened: Mr Szpotański was deprived of his managerial responsibilities and made an "adviser"

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strongly organized, and because of that the company did not perish, and with the elapse of time should have by now achieved the prominence it enjoyed before the war.

35. S Kleiman and Sons did not spend money on research like Szpotański, but manufactured efficiently from designs mostly copied or compiled from foreign sources, and working on a good profit margin could very often underbid Szpotański's wares. The plant was owned by Hebrews and was located in their ghetto created by the Germans. It was completely destroyed during the occupation and there was nothing left to reconstruct.

36. Bracia Borkowscy started in Warsaw about 1919-21 as a wholesale and retail business of household appliances and house wiring equipment. Gradually a manufacturing line was added which prosperously expanded to include several lines. The factories in Warsaw manufactured electric light fixtures including expensive bronze candelabra, electrical heaters, irons, hot plates, and coffee pots. Later an industrial lighting equipment department was added and did very well. Then came switches, switchgear, fuse boxes and distribution panels, primarily for buildings, but some for industrial use. A roentgen (X-ray) and medical machinery line was successfully started and became well established on the market. In 1938-39 they started making electric ovens for industrial use. Installation material pressed out of bakelite was also manufactured.

From the above description it is apparent that the Borkowski Brothers plant was developing along the line of a free enterprise and did not fit well into the industry pattern of the new regime.

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It probably underwent an ordeal similar to Szpotański or the Government Telecommunication plant, and was recoverable.

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37. Of the small manufacturers, some perished and others by now have probably been absorbed by larger organizations. The Wispofana plant in Poznań is probably intact and in operation.

38. The "Association of Electrical Apparatus," being formed around the K Szpotański plant in 1946, was in a very difficult position. It could supply nothing, having first to reconstruct Szpotański and Borkowski. Then it was discovered that in Łódź (incorporated during World War II into "Deutches Reich") a large new plant had been built by the Germans for mass or at least large quantity manufacture of low voltage switches, starters, automotive starters, fuse boxes and thermo-overload switches for electric motors. All had cast iron boxes and were especially designed for industrial use. The "Association" was delighted with that discovery and plans were made at that time to cover all Polish demand for low voltage gear from the new Łódź factory and direct the reconstruction of the Szpotański plant towards high voltage and high power gear. 50X1 the Borkowski Brothers plant 50X1 was a large unit employing some 400 to 600 workers. 50X1

39. In 1946 the "Associations" of Cables, Electrical Machines, Electrical Bulbs and Apparatus were organized and in operation. They pretty much covered all electrical manufacturing activities. There was some discussion where to assign one more very good plant - Cishewski in Bydgoszcz. This plant was primarily a manufacturer of electric installation equipment out of bakelite: switches, plugs, sockets, lampholders etc. These articles were rather expensive but were rated as the best ones manufactured in Poland. There was some discussion about forming an "Association" of installation material factories, but then the Kraków cable factory and the Borkowski Brothers in Warsaw would have to be split or left in the hands of other "Associations." In 1946 this problem was not yet solved.

BATTERIES

40. Tudor in Piastów, a suburb of Warsaw, was a large manufacturer of storage batteries. Its purchases of lead were sufficient to affect the lead market in much the same way as that of the larger lead-covered cable manufacturers. There should be at least one more storage battery manufacturer 50X1

41. There were dozens of suppliers of dry batteries for flashlights, radios, army telephones, etc, but only one, Centra in Poznań, was regarded as a consistent producer of reliable, long-lasting batteries. Therefore, in 1939, in anticipation of a long war, the plant was selected for evacuation and installation elsewhere for the manufacture of batteries for the German Army. The original plant has undoubtedly been reconstructed by this time. 50X1

42. A very important sector of the electrical industry - the electric power generating plants (utilities) - had in 1946 very influential support toward not being incorporated into the "Electrical Industry Central Management" but left alone as a semi-independent unit reporting directly to the Ministry of Industry. 50X1 50X1 Besides the caliber of people running the "Central Management of Electrical Industry" was much too small to swallow and digest the utilities. However, directives as to how to organize were supplied from Moscow and could overrule any local decisions.

43. Mention should also be made of the industries yielded by the so-called "territories recovered," or territories owned by the Poles some 500 years ago, then colonized by Germans, and after World War II given to Poland by the Soviets to compensate for the annexed provinces of Lwów and Wilno. In 1945 the Soviets occupied those areas, sealed them off and in great haste seized whatever they saw and could hope to transport.

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When that period of "liberation" was over the "Polish government" was allowed to take over those areas and commence reconstruction. 50X1

50X1 coal mines and steel mills being reconstructed, but by the middle of 1946 there was not a single electric manufacturing plant "discovered" in this new territory.

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